Name of Organization: Great Lakes Commission

Type of Organization: Interstate Agency or Commission

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Project Title: Evaluating Farm Planning Efforts in the Lake Erie Basin

Project Category: Pollution Prevention and Reduction - BNS

Rank by Organization (if applicable): 1

Total Funding Requested ($): 146,930 **Project Duration:** 2 Years

Abstract:

This project will improve the ability of the Great Lakes states and federal agencies to characterize the impacts of agricultural pesticides and fertilizers on the Lake Erie Basin through the development of a framework for evaluating Lake Erie farm planning efforts. This framework and associated goals will be pursued through five principal components: 1) Project Scoping; 2) Literature Review/Research and Analysis; 3) Survey of Lake Erie SWCDs; 4) GIS Application of Data; and 5) Lake Erie Farm Planning Workshop. The thorough analysis of the Lake Erie agriculture system and inputs will support a more informed approach to farm management in the Lake Erie Basin and will help target educational and technical assistance services to the most needy areas. A two-day workshop will also promote discussion and the adoption of a comprehensive, uniform and consensus based approach to environmentally sound farm planning and management practices. This project will benefit and enhance initiatives in the Great Lakes such as the AOC program, the Lake Erie LaMP and the Lake Erie/Lake St. Clair North American Water Quality Assessment (NAWQA). In developing an approach for assessing farm planning impacts in the Lake Erie Basin, the proposed project will address many of the U.S. EPA-GLNPO's priorities as established under the Great Lakes Binational Toxics Strategy (BNS). The benefits to the Lake Erie LaMP will also be significant as the use and impact of pesticides, and nitrates trends/impacts are identified LaMP priorities in the Lake Erie Basin.

Geographic Areas Affected by the Project

States:

- ☐ Illinois
- ☒ Indiana
- ☒ Michigan
- ☐ Minnesota
- ☒ New York
- ☒ Pennsylvania
- ☐ Wisconsin
- ☒ Ohio

Lakes:

- ☐ Superior
- ☐ Huron
- ☐ Michigan
- ☒ Erie
- ☐ Ontario
- ☐ All Lakes

Geographic Initiatives:

- ☐ Greater Chicago
- ☒ NE Ohio
- ☐ NW Indiana
- ☐ SE Michigan
- ☐ Lake St. Clair

Primary Affected Area of Concern: Ashtabula River, OH

Other Affected Areas of Concern: Rouge River, River Raisin, Maumee River, Black River, Cuyahoga River, Presque Isle Bay, Buffalo River, Niagara River

For Habitat Projects Only:

Primary Affected Biodiversity Investment Area:

Other Affected Biodiversity Investment Areas:

Problem Statement:

Successful point source pollution control programs have markedly improved Great Lakes water quality over the past 30 years. Over the past decade, the focus has shifted to controlling pollution from nonpoint sources. Resource managers have begun to better understand the relationship between agriculture and these diffuse sources of pollution now widely recognized as a major contributor to Great Lakes water quality problems. Great Lakes agriculture, especially in the Lake Erie Basin, has been heavily scrutinized regarding its impacts on water quality and overall ecosystem health. In recent years, innovative best management practices and new conservation practices have been developed to help farmers achieve their environmental goals. One approach is whole farm planning, which allows the landowner to bring the entire farm under one management plan. In the Great Lakes region, more and more farmers are recognizing the benefits of using a "whole farm" approach to managing their farms. As farmers in the Lake Erie Basin become more proactive in environmental decision making and as larger numbers of landowners begin adopting innovative farm management and conservation treatment practices there is a tremendous need to develop assessment tools for evaluating farm planning efforts. This project addresses this identified need by providing a framework for assessing farm planning efforts in the Lake Erie Basin, with a particular emphasis on characterizing the input and uses of fertilizers and pesticides. The project will benefit landowners, managers of regulatory agencies, field personnel at the state and local levels, and all other parties interested in agricultural management issues.

This project is viewed as an initial phase of a comprehensive basinwide program that will help local, state and federal resource management agencies target resources in the future. It will benefit and enhance initiatives in the Great Lakes such as the AOC program, the Lake Erie LaMP and the Lake Erie/Lake St. Clair North American Water Quality Assessment (NAWQA), among others. In developing an approach for assessing farm planning impacts in the Lake Erie Basin, the proposed project will address many of the U.S. EPA-GLNPO's priorities as established under the Great Lakes Binational Toxics Strategy (BNS). The benefits to the Lake Erie LaMP will be significant as the use and impact of pesticides, and nitrates trends/impacts are identified LaMP priorities in the Lake Erie Basin.

Agriculture is a major industry in the Great Lakes region, accounting for 30% of all agricultural sales in the U.S.; a $45 billion a year industry that encompasses more than half of the total land mass in the eight Great Lakes states. Twenty-two million of these acres lie within the Great Lakes Basin. The environmental consequences associated with such intensive agricultural production are pronounced and these impacts have begun to receive much attention in the United States and Canada. More than 63 million tons of soil erode annually in the U.S. portion of the Great Lakes Basin alone; with the annual value of nutrients lost estimated at $336 million. In the Lake Erie Basin, it is clear that agriculture has had a variety

of adverse impacts on the region's water resources. Sediments, nutrients and pesticides are all present in area rivers that drain into the lake. Individual farmers are constantly facing the need to evaluate tillage, nutrient management and pesticide management practices for their farms. In recent years, farmers have also had to cope with an increasing array of governmental regulations, each designed to address one problem at a time as opposed to viewing farm management from an ecosystem approach.

Proposed Work Outcome:

Five work elements and related outcomes are proposed:

1) Project Scoping - Scoping activities will occur over the first two quarters of the project period. The key project partner will be the Great Lakes Basin Whole Farm Planning Network (GLBWFPN), consisting of farmers, farm service providers, sustainable agriculture groups and other farm organizations. The GLBWFPN has been providing technical assistance and serving as a clearinghouse of information about comprehensive whole farm planning since 1995. One of the key unmet needs identified by the GLBWFPN through its work with farmers throughout the basin is lack of useful assessment tools for evaluating farm planning efforts. A project oversight team will be assembled consisting of members of GLBWFPN, the National Association of Conservation Districts (NACD)-Great Lakes Committee, Farm*A*Syst, state water quality and agricultural program representatives, federal agency representatives from U.S. EPA, USDA, USGS and others, the Ohio State University and regional agencies such as the International Joint Commission (IJC) and the Conservation Tillage Information Center (CTIC). This team will develop a detailed workplan and provide direction and oversight over the project period.
2) Literature Review/Research and Analysis - The Great Lakes Commission staff, in concert with the project oversight team, will design and conduct a methodical review of historical and current data and information regarding fertilizer and pesticide usage in the Lake Erie Basin. This will entail reviewing pesticide sales records; historical land-use and water quality data; trends in adoption of whole farm planning practices; use of innovative cropping and tillage methods in the Lake Erie Basin; and state and federal programs related to the regulation and management of agricultural practices. This activity will utilize reports, research and literature searches previously conducted by Heidelberg College, the Ohio State University, USDA-NRCS, the International Joint Commission, the Ohio Lake Erie Commission and others. This program research will be augmented by personal interviews, information gathering via the Internet/World Wide Web and a direct survey of soil and water conservation districts in the Lake Erie Basin. Research results will be prepared in a report to GLNPO, accompanied by a narrative presenting a comparative analysis and preliminary findings, data gaps and unmet needs.
3) Survey of Lake Erie Soil and Water Conservation Districts- Great Lakes Commission staff, along with the NACD-Great Lakes Committee, will conduct an extensive survey of the Great Lakes Basin soil and water conservation districts (SWCDs) to gather information on programs, management priorities and unmet needs at the local level. This survey will be conducted during the second half of 2000. A farm management practices component will be built into the survey to augment the research being conducted under item one. This survey will provide valuable farm planning information at the county level and possibly at the individual farm level. Survey results will be compiled and analyzed along with the research results under item one.
4) GIS Application of Data- Geographic information will be collected as part of the survey and research process, and the resulting database will become part of a GIS with a mapping component to be used as a management tool by GLNPO and other resource management agencies. This mapping can be done at the individual farm unit level, but more likely will be done on a more general area such as a township or county. After survey results are analyzed, this component will involve follow-up contact with landowners and SWCD staff to establish and verify precise geographic information. At the same time, the associated database fields for each entry will need to be imported and referenced to background geographic layers (e.g., roads and streams) to complete the conversion to a GIS database. To make this component a more powerful management and decision making tool, historical data on water quality, land use changes, soil characteristics and quality, tillage methods and changes and industry types (e.g., fertilizer factories) will be incorporated into the database. This GIS information will serve resource managers in two principal ways. First, county-by-county numbers can bring attention to USDA-NRCS teams operating in those areas. For instance, it can serve as a warning beacon in counties where pesticide usage and water quality impacts appear to be quite high in relationship to other areas. This data can help mobilize USDA-NRCS technical assistance and local agricultural agency involvement with landowners to help them implement changes in their farm planning practices. Second, the GIS can help highlight well-managed areas that can then be examined as models for other areas.
5) Planning and Conducting a Lake Erie Farm Planning Workshop - With assistance from the project oversight team, Commission staff will design, plan and conduct a 1-2 day workshop during the latter half of the project period. The objective is to present preliminary research and survey results, present the draft GIS and, through consensus-based small-group discussion, develop draft findings and identify unmet needs in the area of evaluating farm planning in the Lake Erie Basin.

The outcome of this workshop will be a series of findings and recommendations that will be presented in the form of a farm planning "action strategy" to provide agencies, landowners and other farm-based groups with guidance as they exercise their decision making responsibilities and establish their future agendas. The workshop will further explore the relationships between local state programs and approaches related to farm planning and new federal initiatives being advanced by U.S. EPA and USDA, among others. Participants at this workshop will include federal, provincial and state agency employees, landowners, soil and water conservation district board and staff members, members of the agri-business community, members of the environmental community and others with an interest or mandate in agricultural issues.

Project Milestones:	**Dates:**
Project Start	10/2000
Project Scoping	12/2000
Literature Review/ Research and Analysis	06/2001
Survey Lake Erie SWCDs	08/2001
GIS Application of Data	03/2002
Plan and Conduct Workshop	04/2002
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Project End	09/2002

☐ Project Addresses Environmental Justice

If So, Description of How:

☒ Project Addresses Education/Outreach

If So, Description of How:

An education/outreach plan will be developed with assistance from the project steering committee, especially the GLBWFPN. The GIS component will play an important role in project outreach by helping to focus educational efforts in those areas that appear to poorly managed. Materials on whole farm planning and farm management principles previously developed by the Ohio State University, Farm*A*Syst, GLBWFPN and others will be used or adapted to the needs of this project, preventing the need to develop new educational materials. Specific project accomplishments, milestones and results will be regularly presented in the Commission newsletter Advisor as well as the Commission managed newsletter Keeping it on the land, which is published quarterly and reaches more than 1,100 soil and water conservation professionals and interested parties throughout the binational Great Lakes basin.

Project Budget:

	Federal Share Requested ($)	Applicant's Share ($)
Personnel:	51,755	4,245
Fringe:	18,115	1,485
Travel:	9,000	0
Equipment:	0	0
Supplies:	1,800	0
Contracts:	18,000	0
Construction:	0	0
Other:	12,500	0
Total Direct Costs:	111,170	5,730
Indirect Costs:	35,760	2,005
Total:	146,930	7,735
Projected Income:	0	0

Funding by Other Organizations (Names, Amounts, Description of Commitments):

No additional funding has been sought in support of this project. A modest registration fee to offset costs associated with the Farm Planning Workshop will be charged to participants. In addition, significant in-kind contributions will be available, throughout the life of the project, from the Great Lakes Basin Program for Soil Erosion and Sediment Control (which will support the major share of expenses associated with the district survey) and other sources.

Description of Collaboration/Community Based Support:

The main project partners will be the Great Lakes Basin Whole Farm Planning Network (GLBWFPN), the NACD-Great Lakes Committee, the Ohio State University, state water quality and agriculture agencies, U.S. EPA, USDA-NRCS, International Joint Commission (IJC) and the Conservation Technology Information Center (CTIC). The Ontario Crop Improvement Association will also be encouraged to participate and serve as liaison with other Canadian soil and water conservation interests. These groups will form the project oversight team. Various work groups may also be established to address specific tasks, and landowners will participate and be a key target group to attend the Workshop.